

REPRODUCTIVE HEALTH

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Reproductive health

- WHO – total well-being in all aspects of reproduction i.e. physical, emotional, behavioral, social
- Reproductively healthy society – people having physically and functionally normal reproductive organs and normal emotional and behavioral interactions among them in all sex – related aspects
- Family planning program- initiated in 1951, periodically assessed – hum do humare do (ideal replacement level – 2.1 /couple)
- Reproductive child health care (RCH) program (1997) –

1. Spread information about hygienic and safe sex practices, contraceptive usage, STDs, adolescence and related changes AIDS
2. Prenatal, antenatal, during delivery and post-natal care of both mother and baby, breast feeding importance, equal opportunity for male and female child
3. Safe abortion/ termination of pregnancy
4. Child immunization

➤ **2011 census report –**

- ✓ Total population - 1.21 billion
- ✓ Literacy rate - 74.04%
- ✓ Population density – 382 / sq.km
- ✓ Sex ratio – 940 female / 1000 male
- ✓ Population growth rate 1.7% (17/1000 / year)
- ✓ (2001 census) Doubling rate - 33 years (population explosion)
- ✓ World population – In 1900 (2 billion/ 2000 million), in 2000 (6 billion)
- ✓ Indian population- in 1947 (350 million), in 2000 (1 billion), in May 2000 – crossed one billion
- ✓ Every sixth person in the world is an Indian
- ✓ Rapid decline in death rate, MMR and IMR, increase in number of people in reproductive age are responsible

Steps to overcome this problem -

1. motivate smaller families by contraceptive usage
2. hum do humare do – one child norm
3. statutory raising of marriageable age (female 18 years and males 21 years)
4. incentives to couples with small families

Note:- statutory ban on amniocentesis (a fetal sex determination test based on the chromosomal pattern in amniotic fluid surrounding developing embryo) for sex determination to legally check increasing female foeticide

➤ **Contraceptive methods -**

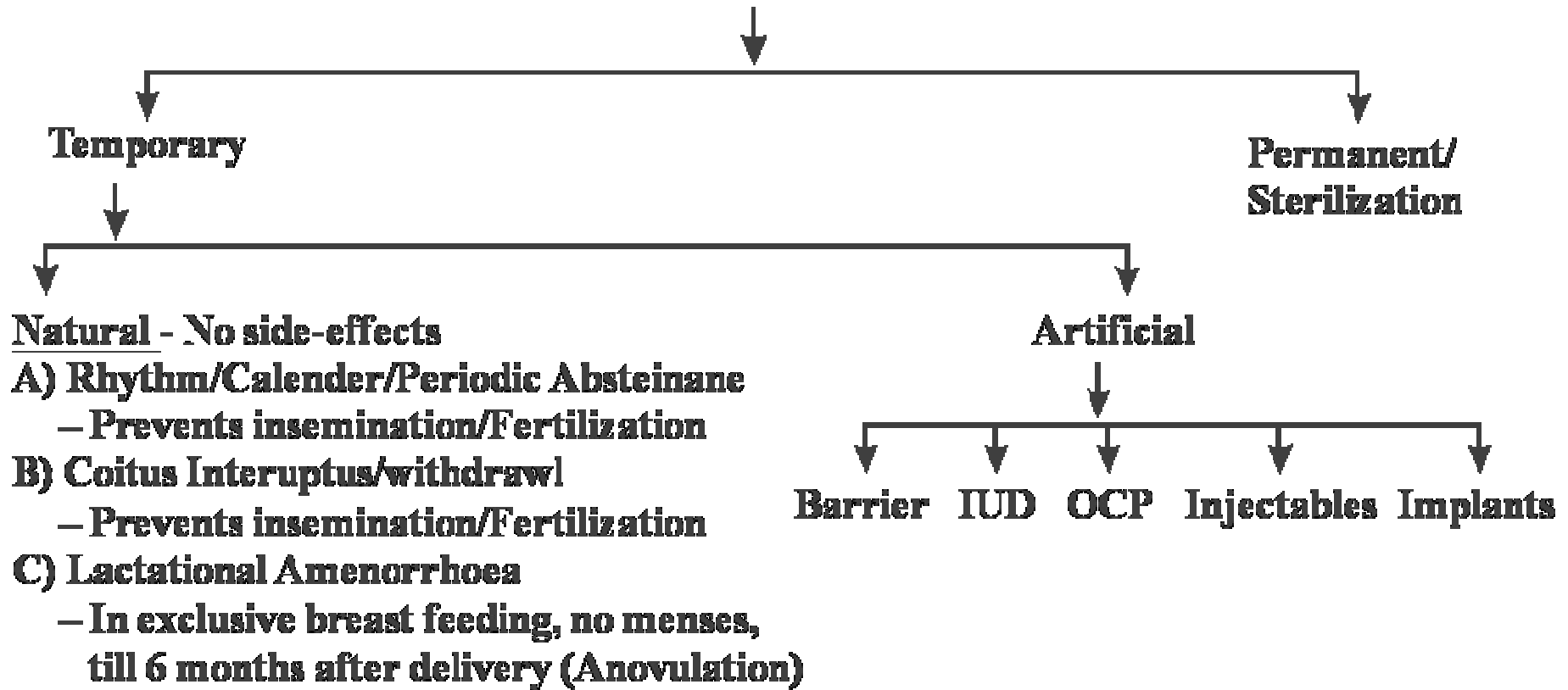
- ✓ Ideal contraceptive – user-friendly, easily available, effective, reversible with no or least side effects, should not interfere with sexual drive, desire and sexual act of the user
- ✓ Possible ill effects – nausea, abdominal pain, breakthrough bleeding, irregular menstrual bleeding, breast cancer
- ✓ Medical termination of pregnancy (MTP)/ induced abortion -
- ✓ Intentional or voluntary termination of pregnancy before full term
- ✓ 45-50 million MTP's performed in a year all over world ($1/5^{\text{th}}$ of total conception)

- ✓ Role in decreasing population but not meant for this purpose
- ✓ Indian government legalized MTP in 1971
- ✓ Indications – casual unprotected intercourse, contraceptive failure, rape, where pregnancy continuation could be harmful to mother or foetus or both
- ✓ Allowed upto 20 week, safe only upto 12 weeks of pregnancy (1st trimester)
- ✓ Unsafe and fatal if performed illegally by unqualified quacks
- ✓ Misuse of amniocentesis for sex determination of unborn child followed by MTP (illegal, dangerous for young mother and foetus)

➤ **Methods of MTP –**

1. Medical abortion (pills)- upto 9 weeks
 - A. Mifepristone (RU-486) - anti- progestin pills
 - B. Misoprostol (PG-F2alpha) - induce uterine contractions
2. Surgical methods – vacuum aspiration, dilatation and evacuation (D&E)

Contraceptive Methods



➤ **Contraceptive methods –**

Natural (3) -

1. Rythm / calander / periodic abstinence –

- ✓ avoidance of sexual intercourse from day 10 – 17 of menstrual cycle, when ovulation is expected (fertile period/ unsafe period)

2. Withdrawal / coitus interruptus –

- ✓ Male partner withdraws his penis from the vagina, just before the ejaculation to avoid the insemination

3. Lactational Amenorrhea (absence of menstruation) –

- ✓ Ovulation and therefore the cycle do not occur during the intense lactation following parturition
- ✓ Effective only upto a maximum period of sixth month following a parturition
- ✓ Chances of failure high

➤ **Artificial methods –**

1. Barrier methods – ovum and sperms are prevented from physically meeting with the help of barriers

a) physical barrier –

- ✓ male condoms (Nirodh- thin rubber, latex sheath covers penis in male)
- ✓ female condoms- cover vaginal and cervix
- ✓ used just before coitus so that ejaculated semen would not enter into female reproductive tract and can prevent conception
- ✓ protects user from contracting STDs and AIDS
- ✓ both male and female condoms –disposable, can be self inserted, gives privacy to user

- Diaphragms, Cervical caps and Vaults (rubber)
 - inserted into female reproductive tract to cover cervix before coitus. They prevent conception by blocking sperm entry through cervix , reusable

b) Chemical barriers – foams – sponges/tablets/jelly soaked with spermicidal agents

- ✓ Spermicidal creams, jellies and foams are used along with physical barriers to increase their contraceptive efficiency
- ✓ Eg. TODAY sponge – spermicidal agent (non – oxynol- 9)

2. Intra Uterine Contraceptive Device (IUCD/IUDs)

- ✓ These devices are inserted by doctors and experts nurses in the uterus through vagina

Three types –

- A) Non -medicated IUDs – eg. Lippes loop, increase phagocytosis of sperms within uterus
- B) Cu – releasing IUDs – CuT, Cu7, multiload - 375
 - ✓ Cu ions released suppress sperm motility and the fertilizing capacity of the sperms



Figure 4.1(a) Condom for male



Figure 4.1(b) Condom for female

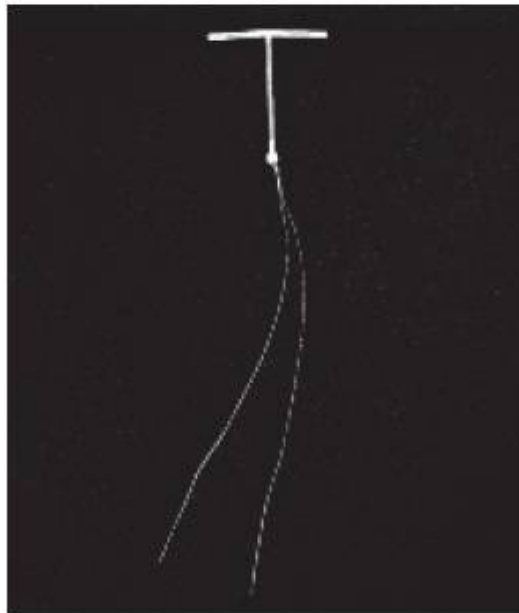


Figure 4.2. Copper T (CuT)

C) Hormone releasing IUDs – progestasert, LNG – 20 (mirena)/ levonorgestrel- 20 (synthetic progesterone)

- ✓ Makes uterus unsuitable for implantation
- ✓ Makes cervix hostile to sperms (cervical mucus thick and sticky, retards sperm entry, retards fertilization)
- ✓ Slow growth of endometrium - retards implantation of fertilized egg
- ✓ IUDS are ideal contraceptive for the females who want to delay pregnancy or space children
- ✓ One of the most widely accepted contraceptive methods in India
- ✓ No protection from STD

3. Oral Contraceptive Pills (OCPs) - used in form of tablets, called pills

A. Combined pills : progesterone – estrogen combination

- ✓ inhibits ovulation by suppressing gonadotropins, alter the quality of cervical mucus to prevent/ retard sperm entry, slow growth of endometrium – retards implantation
- ✓ Eg. MALA- D, MALA- N, Ovral -G etc
- ✓ Taken daily for a period of 21 days, starting preferably within the first 5 days of menstrual cycle

- ✓ After a gap of 7 days (during which menstruation occurs), it has to be repeated in the same pattern till the female desire to prevent conception
- ✓ Lesser side effects and well accepted by a females

Note:- Saheli (non- steroidal preparationby CDRI Lucknow) –

- ✓ once a week pill with very few side affect with high contraceptive value , non- hormonal
- ✓ (Centchroman/ Ormeloxifen- anti- estrogen), inhibits implantation

B. Progestogens alone/ Minipills :

- ✓ Benefits can be given to lactating mother, hypertensive, breast cancer etc.

➤ **Emergency contraception –**

- ✓ Casual Unprotected sex, contraceptive failure / rape
- ✓ Administration of progestogen (LNG – 20 / unwanted 72) or progestogen – estrogen combination or IUD within 72 hours of coitus
- ✓ Prevents ovulation – prevent fertilization

Note :- male contraceptive pill – arrest spermatogenesis, Gossypol (from cotton seeds)

4. **Injectables – slow release of hormone, m/a same as pills**

- ✓ Eg. DMPA (Depot Medroxy Progesterone Acetate)
- Every three months
- ✓ NET- EN (Nor- ethisterone enanthate) every 2 months

5. Implants – slow hormone release

- ✓ Eg. Norplant
- ✓ 6 silicon tubes, filled with LNG, effective for 5 years, inserted subdermally/ subcutaneously in upper arm

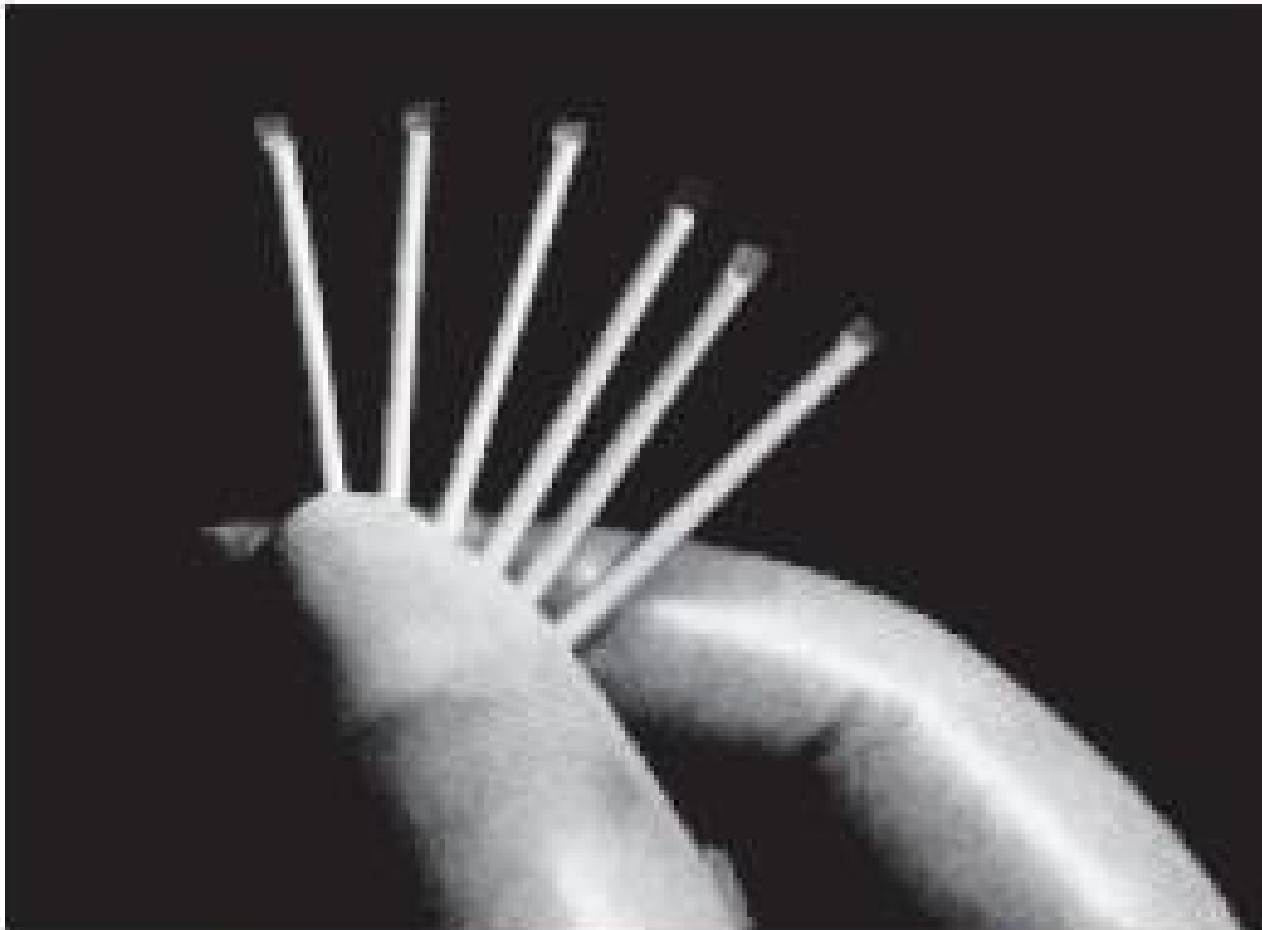


Figure 4.3 Implants

➤ Permanent contraception/ sterilisation – surgical methods

- ✓ Blocks ducts carrying gametes – blocks gamete transport – thus prevent conception
- ✓ In males- Vasectomy- a small part of vas deferens is removed or tied up through a small incision on scrotum , semen without sperm
- ✓ In female – Tubectomy – small part of FT is removed or tied up thorough a small incision in abdomen or through vagina (fallope/sialastic ring , silicon)
- ✓ Prevents fertilization
- ✓ Highly effective but reversibility is very poor.

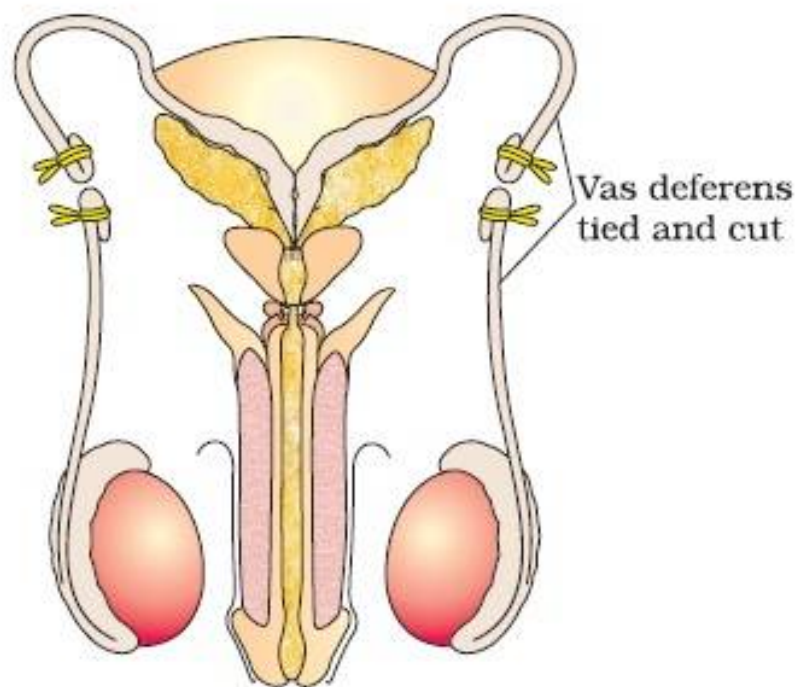


Figure 4.4a Vasectomy

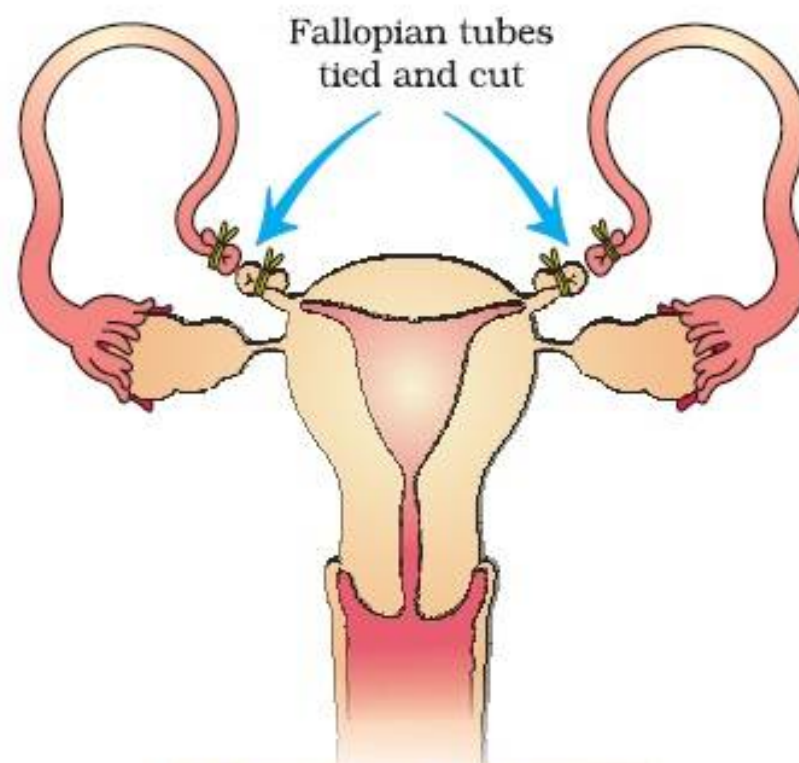


Figure 4.4 (b) Tubectomy

- Sexually transmitted diseases STD's/ venereal disease (VD)/ reproductive tract infections (RTI)
 - ✓ Early symptoms – minor – itching, fluid discharge, slight pain, swelling in genital region
 - ✓ Late complication, (PID), infertility, ectopic pregnancy, still birth, cancer of reproductive tract.
 - ✓ Incidence high – 15-24 years age group
 - ✓ Absence or less significant symptoms in early stage of infection and the social stigma attached to STD's – deter timely detection and proper treatment

➤ **Prevention –**

1. Avoid sex with unknown partners/ multiple partners
2. Always use condoms during coitus
3. In case of doubt, refer qualified doctor for early detection and get complete treatment if diagnosed with disease

➤ **Bacterial STDs:**

1. Chlamydiasis - C.trachomatis (obligate intracellular parasite)
 - ✓ Males-urethritis
 - ✓ Females-cervix and vagina,urethra
 - ✓ Passes from mother to baby during delivery through birth canal(blindness of baby)
 - ✓ T/t-antibiotics (tetracycline/doxycycline)
2. Gonorrhea/The clap disease - Neisseria gonorrhoeae
 - ✓ Male-urethra
 - ✓ Female-vagina/cervix
 - ✓ Passes from mother to baby during delivery through birth canal(blindness of baby)
 - ✓ T/t – antibiotics

3. Chancoid- *Haemophilus ducrei* (gram-ve)

- ✓ Soft, painful ulcer with necrotic base (bleeds on touch), on penis in male and vulva/ vagina in female
- ✓ Treatment antibiotics

4. Sphilis- *Treponema pallidum*

Three stages –

A. primary – painless, hard clean ulcer (=chancre)

B. secondary- muscle fatigue, joint pain, fever etc

C. tertiary -organ involvement

- ✓ **Note:-** latent period = 20 years
- ✓ Treatment – penicillin antibiotic
- ✓ Dx- TPI test/ VDRL test

➤ **Viral STDs –**

1. Hepatitis B – HBV (DNA)

- ✓ Damages liver
- ✓ Recombinant DNA vaccine available

2. HIV – Human Immuno- deficiency Virus

- ✓ Effects helper- T cells (CD4 cells)
- ✓ Dx – ELISA (screening), western blotting (confirmatory)

3. Genital warts- HPV (Human Papilloma Virus)

- ✓ Outgrowth / warts on genital area (penis in male and vulva / vagina in female)
- ✓ Can cause cancer of reproductive tract
- ✓ Treatment – cryotherapy with liquid nitrogen, elctrotherapy, laser, podophyllin application (resin)

4. Genital herpes – HSV- II (Herpes Simplex Virus)
- ✓ Vesiculo- pustular, painful ulcer at genitalia, itching, burning etc.
 - ✓ Saline fomentation, painkillers, acyclovir (anti-viral drug, delays progression of disease)
 - ✓ Incurable

- Trichomoniasis – flagellated protozoa, *Trichomonas vaginalis*
 - ✓ If vaginal acidity disturbed,
 - ✓ Yellow greenish discharge, foul / fishy smell, itching
 - ✓ Treatment – metronidazole to both partners
- World Population day – 11th July
- World Health day -7th April (1948- WHO headquarters at Geneva)

➤ **Infertility:**

- ✓ Couple unable to produce children inspite of 2 years of unprotected sexual cohabitation
- ✓ Reasons- physical, congenital disease, immunological, drugs, psychological etc
- ✓ Legal adoption is as yet one of the best methods for couples looking for parenthood
- ❖ Assisted reproductive technologies (ART) -
 - ✓ Requires extremely high precision handling by specialized professionals and expensive instrumentation (facility available in few centers, affordable to limited people)

Note: HIV, hepatitis-B, Herpes (genital) are incurable.

Infertility- 2 types- primary and secondary

➤ ART –

1. AI (Artificial Insemination) –

- ✓ Indications – very low sperm counts in ejaculate, inability of male partner to inseminate the female (ED)**
- ✓ Artificial introduction of semen of husband or healthy donor either into vagina or into uterus (IUI) of female**
- ✓ IUI- Intra Uterine Insemination**

2. IVF –ET (In Vitro Fertilization - Embryo Transfer)/ test tube baby : Fertilization outside the body in almost similar conditions as that in the body

- ✓ Ova from the wife / female donor and sperms from the husband/male donor are collected and are induced to form zygote under simulated conditions in the lab
- ✓ The zygote at early embryos (with upto 8 blastomeres) could then be transferred to the fallopian tube (ZIFT- Zygote Intra Fallopian Transfer) and embryos with more than 8 blastomeres into the uterus (IUT- Intra Uterine Transfer)

- First IVF baby in the world – Louis Joy Brown in England (25 July 1978)
- First IVF baby in India – Dr. Subhash Mukherjee (Durga – 3rd October 1978)

3. GIFT – Gamete Intra Fallopian Transfer

- ✓ Transfer of an ovum collected from a donor into the fallopian of another female who cannot produce one but can provide suitable environment for fertilization and further development
- ✓ Fertilization is inside the body

4. ICSI – Intra Cytoplasmic Sperm Injection
 - ✓ A single healthy sperm is directly injected into the ovum/ ooplasm by using microneedle
 - ✓ Indication- very low sperm counts, repeated IVF failure, fertilization failure in IVF, obstructive azoospermia

Note:-

- ✓ TESE- TEsticular Sperm Extraction
 - ✓ PESA – Percutaneous Epididymal Sperm Aspiration
 - ✓ MESA- Microsurgical Epididymal Sperm Aspiration
5. Donor eggs/semen/embryo
 6. Surrogacy – rented womb
 7. SUZI- sub zonal insemination
 8. POST – Peritoneal Oocyte Sperm Transfer